Oecologia

In Cooperation with the
International Association for Ecology (Intecol)

Vol. 60 1983

Editorial Board

F. A. Bazzaz, Urbana
P. J. den Boer, Wijster (Dr.)
J. Ehleringer, Salt Lake City
P. R. Ehrlich, Stanford
J. T. Enright, La Jolla
M. Evenari, Jerusalem
J. L. Harper, Bangor
R. B. Huey, Seattle
C. J. Krebs, Vancouver
O. L. Lange, Würzburg
W. Larcher, Innsbruck
J. Myers, Vancouver
D. Neumann, Köln
B. Osmond, Canberra City
J. Phillipson, Oxford
H. Remmert, Marburg/Lahn
F. Schaller, Wien
Th. W. Schoener, Davis
E.-D. Schulze, Bayreuth
B. R. Strain, Durham
A. Watkinson, Norwich
T. C. R. White, Wagga Wagga
W. Wieser, Innsbruck
H. Ziegler, München
H. Zwölfer, Bayreuth

Editors in Chief: H. Remmert (Zoology) and E.-D. Schulze (Botany)

Springer International

Oecologia

Derived from "*Zeitschrift für Morphologie und Ökologie der Tiere*", *Oecologia* was founded in 1968, Volumes (1968–1982), and edited by H. Remmert. As of Volume 53 (1982) the journal has been edited by both H. Remmert and E.-D. Schulze.

Submission of a manuscript implies that the work described has not been published before (except in the form of an abstract or as part of a published lecture, review or thesis), that it is not under consideration for publication elsewhere, that its publication has been approved by all the authors and by the responsible authorities – tacitly or explicitly – in the laboratories where the work was carried out and that, if accepted, it will not be published elsewhere in the same form, in either the same or another language, without the consent of the copyright holders. By submitting a manuscript, the authors agree that the copyright for their article is transferred to the publisher if and when the article is accepted for publication. The copyright covers the exclusive rights to reproduce and distribute the article, including reprints, photographic reproductions, microform, electronic data-base, video-disk or any other reproductions of similar nature, and translations.

Photographic reproduction, microform, electronic data-base, video-disk or any other reproduction of text, figures, or tables from this journal is prohibited without permission obtained from the publisher.

The use of general descriptive names, trade names, trade marks, etc., in this publication, even if the former are not specifically identified, is not to be interpreted as exempt from the relevant protective laws and regulations.

While the advice and information in this journal is believed to be true and accurate at the date of going to press, neither the authors nor the editors nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

Special Regulations for the USA

Photocopies may be made for personal or internal use beyond that permitted by Section 107 or 108 of the U.S. Copyright Law, provided a fee is paid. This fee is $0.20 per page or a minimum of $1.00 if an article consists of less than five pages. Please pay this fee to the Copyright Clearance Center, Inc., 21 Congress Street, Salem, MA 01970, USA, stating the ISSN 0029-8549, volume, and first and last page numbers of each article copied.

Other Regulations

Authors of this journal can benefit from library and photocopy fees collected by VG WORT if certain conditions are met. If an author lives in the Federal Republic of Germany or in West Berlin it is recommended that he contact Verwertungsgesellschaft WORT, Abteilung Wissenschaft, Goethestraße 49, D-8000 München 2, for detailed information.

Printers: Universitätsdruckerei H. Stürtz AG, Würzburg
© by Springer-Verlag Berlin Heidelberg 1983

Contents

Adejare, A., s. Hubbell, St.P., et al. 321
Anderson, R.V., s. Trofymow, J.A., et al. 103
Atsatt, P.R., Ingram, T.: Adaptation to oak and other fibrous, phenolic-rich foliage by a small mammal, *Neotoma fuscipes* 135
Ayling, A.L.: Factors affecting the spatial distributions of thinly encrusting sponges from temperate waters . . . 412
Barlow, N.D., Clout, M.N.: A comparison of 3-parameter, single-species population models in relation to the management of brushtail possums in New Zealand 250
Becker, H., s. Steinlechner, St., et al. 401
Beek, S. van, s. Verhoeven, J.T.A., et al. 25
Bell, G.: Measuring the cost of reproduction. III. The correlation structure of the early life history of *Daphnia pulex* 378
Blanchard, M.H., s. Simon, J.P., et al. 143
Brabrand, A., Faafeng, B.A., Källqvist, T., Nilssen, J.P.: Biological control of undesirable cyanobacteria in culturally eutrophic lakes 1
Brand, S., s. Shachak, M. 371
Braune, H.J.: The influence of environmental factors on wing polymorphism in females of *Leptopterna dolobrata* (Heteroptera, Miridae) 340
Choo, G.M., s. Waterman, P.G., et al. 244
Clarke, K.R., s. Pomroy, A.J., et al. 306
Clough, J.M., Teeri, J.A., Tonsor, S.J.: Photosynthetic adaptation of *Solanum dulcamara* L. to sun and shade Environments. IV. A comparison of North American and European genotypes 348
Clout, M.N., s. Barlow, N.D. 250
Coleman, D.C., s. Trofymow, J.A., et al. 103
Compton, S.G., Newsome, D., Jones, D.A.: Selection for cyanogenesis in the leaves and petals of *Lotus corniculatus* L. at high latitudes 353
Cook, R.E., s. Stanton, M.L. 365
Courtice, A.C., s. Drew, R.A.I., et al. 279
Curio, E., Klump, G., Regelmann, K.: An anti-predator response in the great tit (*Parus major*): Is it tuned to predator risk? 83
Damkaer, D.M., Dey, D.B.: UV damage and photoreactivation potentials of larval shrimp, *Pandalus platyceros*, and adult euphausiids, *Thysanoessa raschii* 169
Daniel, Th.L., s. Kingsolver, J.G. 214
Davidar, P.: Birds and neotropical mistletoes: effects on seedling recruitment 271
Dekker, M., s. Verhoeven, J.T.A., et al. 25
Dey, D.B., s. Damkaer, D.M. 169
Dickman, C.R., Woodside, D.P.: A test of a competition model with reference to three species of small mammals in south-eastern Australia 127
Dittami, J., s. Gwinner, E., et al. 66
Drew, R.A.I., Courtice, A.C., Teakle, D.S.: Bacteria as a natural source of food for adult fruit flies (Diptera: Tephritidae) 279
Edwards, J.: Diet shifts in moose due to predator avoidance 185
Ellis, B.A., Verfaillie, J.R., Kummerow, J.: Nutrient gain from wet and dry atmospheric deposition and rainfall acidity in southern California chaparral 118
Faafeng, B.A., s. Brabrand, Å., et al. 1
Field, C., Merino, J., Mooney, H.A.: Compromises between water-use efficiency and nitrogen-use efficiency in five species of California evergreens 384
Foster, W.A.: Activity rhythms and the tide in a saltmarsh beetle *Dicheirotrichus gustavi* 111
Fritz, R.S., s. Morse, D.H. 190
Gallagher, K.J., Morrison, D.A., Shine, R., Grigg, G.C.: Validation and use of ^{22}Na turnover to measure food intake in free-ranging lizards 76
Goldberg, D.E., Werner, P.A.: The effects of size of opening in vegetation and litter cover on seedling establishment of goldenrods (*Solidago* spp.) 149
Goldstein, G., s. Meinzer, F., et al. 237
Gouyon, P.-H., s. Olivieri, I., et al. 114
Griffiths, H., Smith, J.A.C.: Photosynthetic pathways in the Bromeliaceae of Trinidad: relations between life-forms, habitat preference and the occurrence of CAM 176
Grigg, G.C., s. Gallagher, K.J., et al. 76
Gwinner, E., Dittami, J., Gwinner, H.: Postjuvenile molt in East African and Central European stonechats (*Saxicola torquata axillaris, S.t. rubicula*) and its modification by photoperiod 66
Gwinner, H., s. Gwinner, E., et al. 66
Hartsock, T.L., s. Smith, S.D., et al. 10
Heldmaier, G., s. Steinlechner, St., et al. 401
Heyneman, A.J.: Optimal sugar concentrations of floral nectars – dependence on sugar intake efficiency and foraging costs 198
Hill, M.G., s. Newbery, D.McC., et al. 333
Hirose, T., s. Kachi, N. 6
Hollinger, D.Y.: Photosynthesis and water relations of the mistletoe, *Phoradendron villosum*, and its host, the California valley oak, *Quercus lobata* 396
Hubbell, St.P., Wiemer, D.F., Adejare, A.: An antifungal terpenoid defends a neotropical tree (*Hymenaea*) against attack by fungus-growing ants (*Atta*) 321
Ingram, T., s. Atsatt, P.R. 135
Järås, T., s. Wallin, K., et al. 302
Johnsen, G.: Egg age distribution, the direct way to cladoceran birth rates 234
Joint, I.R., s. Pomroy, A.J., et al. 306
Jones, D.A., s. Compton, S.G., et al. 353
Kachi, N., Hirose, T.: Bolting induction in *Oenothera erythrosepala* Borbás in relation to rosette size, vernalization, and photoperiod 6
Källqvist, T., s. Brabrand, Å., et al. 1
Kane, Th.C., Ryan, T.: Population ecology of carabid cave beetles 46
Kingsolver, J.G., Daniel, Th.L.: Mechanical determinants of nectar feeding strategy in hummingbirds: energetics, tongue morphology, and licking behavior 214
Klump, G., s. Curio, E., et al. 83
Kohn, A.J.: Microhabitat factors affecting abundance and diversity of *Conus* on coral reefs 293
Kristjansson, J.K., Schönheit, P.: Why do sulfate-reducing bacteria outcompete methanogenic bacteria for substrates? 264
Kummerow, J., s. Ellis, B.A., et al. 118
Lacey, E.P., Pace, R.: Effect of parental flowering and dispersal times on offspring fate in *Daucus carota* (Apiaceae) 274
Letourneau, D.K.: Passive aggression: An alternative hypothesis for the *Piper-Pheidole* association 122
Levin, M., s. Wallin, K., et al. 302
Lockhart, J.A.: Optimum growth initiation time for shoot buds of deciduous plants in a temperate climate 34
Lonsdale, W.M., Watkinson, A.R.: Tiller dynamics and self-thinning in grassland habitats 390
Lynch, G.R., s. Vogt, F.D., et al. 313
Mahall, B.E., s. Robberecht, R., et al. 21
Maruta, E.: Growth and survival of current-year seedlings of *Polygonum cuspidatum* at the upper distribution limit on Mt. Fuji 316
Matthews, W.J., s. Power, M.E. 328
Mechsner, Kl.: The influence of the dissolved oxygen concentration on the physiology and ecology of *Sphaerotilus natans* Kütz 18

Meinzer, F., Seymour, V., Goldstein, G.: Water balance in developing leaves of four tropical savanna woody species 237
Merino, J., s. Field, C., et al. 384
Mills, J.N.: Herbivory and seedling establishment in post-fire southern California chaparral 267
Mooney, H.A., s. Field, C., et al. 384
Morley, C.R., s. Trofymow, J.A., et al. 103
Morrison, D.A., s. Gallagher, K.J., et al. 76
Morse, D.H., Fritz, R.S.: Contributions of diurnal and nocturnal insects to the pollination of common milkweed (*Asclepias syriaca* L.) in a pollen-limited system 190
Newbery, D.McC., Hill, M.G., Waterman, P.G.: Host-tree susceptibility to the coccid *Icerya seychellarum* Westw. (Margarodidae: Homoptera) on Aldabra Atoll: the rôle of leaf morphology, chemistry and phenology 333
Newsome, D., s. Compton, S.G., et al. 353
Nilssen, J.P., s. Brabrand, Å., et al. 1
Nobel, P.S., s. Robberecht, R., et al. 21
Nobel, P.S., s. Smith, S.D., et al. 10
Olivieri, I., Swan, M., Gouyon, P.-H.: Reproductive system and colonizing strategy of two species of *Carduus* (compositae) 114
Pace, R., s. Lacey, E.P. 274
Potvin, C., s. Simon, J.P., et al. 143
Peters, R.H., Wassenberg, K.: The effect of body size on animal abundance 89
Phillipson, J.: Slug numbers, biomass and respiratory metabolism in a beech woodland – Wytham Woods, Oxford 38
Pomroy, A.J., Joint, I.R., Clarke, K.R.: Benthic nutrient flux in a shallow coastal environment 306
Power, M.E., Matthews, W.J.: Algae-grazing minnows (*Campostoma anomalum*), piscivorous bass (*Micropterus* spp.), and the distribution of attached algae in a small prairie-margin stream 328
Price, M.V.: Laboratory studies of seed size and seed species selection by heteromyid rodents 259
Roach, D.A.: Buried seed and standing vegetation intwo adjacent tundra habitats, northern Alaska 359
Robberecht, R., Mahall, B.E., Nobel, P.S.: Experimental removal of intraspecific competitors – effects on water relations and productivity of a desert bunchgrass, *Hilaria rigida* 21
Regelmann, K., s. Curio, E., et al. 83
Ryan, T., s. Kane, Th.C. 46
Schmitt, J.: Flowering plant density and pollinator visitation in *Senecio* 97
Schönheit, P., s. Kristjansson, J.K. 264
Seymour, V., s. Meinzer, F., et al. 237
Shachak, M., Brand, S.: The relationship between sit and wait foraging strategy and dispersal in the desert scorpion, *Scorpio maurus palmatus* 371
Shine, R., s. Gallagher, K.J., et al. 76
Silander, J.A. Jr.: Demographic variation in the Australian desert cassia under grazing pressure 227
Simon, J.P., Potvin, C., Blanchard, M.H.: Thermal adaptation and acclimation of higher plants at the enzyme level: kinetic properties of NAD malate dehydrogenase and glutamate oxaloacetate transaminase in two genotypes of *Arabidopsis thaliana* (Brassicaceae) 143
Skogland, T.: The effects of density dependent resource limitation on size of wild reindeer 156
Smith, J.A.C., s. Griffiths, H. 176
Smith, S., s. Vogt, F.D., et al. 313
Smith, S.D., Hartsock, T.L., Nobel, P.S.: Ecophysiology of *Yucca brevifolia*, an arborescent monocot of the Mojave Desert 10
Stanton, M.L., Cook, R.E.: Sources of intraspecific variation in the hostplant seeking behavior of *Colias* butterflies 365
Steinlechner, St., Heldmaier, G., Becker, H.: The seasonal cycle of body weight in the Djungarian hamster: photoperiodic control and the influence of starvation and melatonin 401
Storm, W., s. Verhoeven, J.T.A., et al. 25
Strandvik, P.,s. Wallin, K., et al. 302
Swan, M., s. Olivieri, I., et al. 114
Teakle, D.S., s. Drew, R.A.I., et al. 279
Teeri, J.A., s. Clough, J.M., et al. 348
Tessier, A.J.: Coherence and horizontal movements of patches of *Holopedium gibberum* (Cladocera) 71
Tilman, D.: Plant succession and gopher disturbance along an experimental gradient 285
Tonsor, S.J., s. Clough, J.M., et al. 348
Townsend, C.R., s. Winfield, I.J. 406
Trofymow, J.A., Morley, C.R., Coleman, D.C., Anderson, R.V.: Mineralization of cellulose in the presence of chitin and assemblages of microflora and fauna in soil 103
Turner, T.: Complexity of early and middle successional stages in a rocky intertidal surfgrass community 56
Vedder, A.L., s. Waterman, P.G., et al. 244
Verfaillie, J.R., s. Ellis, B.A., et al. 118
Verhoeven, J.T.A., Beek, S. van, Dekker, M., Storm, W.: Nutrient dynamics in small mesotrophic fens surrounded by cultivated land. I. Productivity and nutrient uptake by the vegetation in relation to the flow of eutrophicated ground water 25
Vogt, F.D., Lynch, G.R., Smith, S.: Radiotelemetric assessment of diel cycles in euthermic body temperature and torpor in a free-ranging small mammal inhabiting man-made nest sites 313
Wallin, K., Järås, T., Levin, M., Strandvik, P., Wallin, M.: Reduced adult survival and increased reproduction in Swedish kestrels 302
Wallin, M., s. Wallin, K., et al. 302
Wassenberg, K., s. Peters, R.H. 89
Waterman, P.G., Choo, G.M., Vedder, A.L., Watts, D.: Digestibility, digestion-inhibitors and nutrients of herbaceous foliage and green stems from an African montane flora and comparison with other tropical flora 244
Waterman, P.G., s. Newbery, D.McC., et al. 333
Watkinson, A.R., s. Lonsdale, W.M. 390
Watts, D., s. Waterman, P.G., et al. 244
Werner, P.A., s. Goldberg, D.E. 149
Wiemer, D.F., s. Hubbell, St.P., et al. 321
Winfield, I.J., Townsend, C.R.: The cost of copepod reproduction: increased susceptibility to fish predation . . . 406
Woodside, D.P., s. Dickman, C.R. 127

Indexed in Current Contents